

Invariant Becoming Theory (IBT): A Unified Model of Reality, Consciousness, and Probability

Vadim Nikolaevich Cherashev

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Abstract

The Invariant Becoming Theory (IBT) proposes a unified framework integrating physics, consciousness, and probability through four fundamental laws: Existence, Unity, Reflection, and Change. Reality emerges from the motion of a single particle—the monad—whose trajectory in a 5-dimensional continuum forms a geometric radiant, giving rise to space, time, and matter. IBT introduces a neutral state (Ψ_{neutral}), observer choice ($\Delta\theta_{\text{choice}}$), and a probability excess (ϵ), exemplified by "Vadim's Paradox," where observer influence leads to probabilities exceeding standard normalization (e.g., a quantum system with a 5% excess probability ($\epsilon = 0.05$) due to observer choice). Testable predictions include spatial shifts (Δx) and fractal patterns in high-energy collisions. Potential applications span artificial intelligence and cosmology. This work is licensed under Creative Commons Attribution 4.0 International (CC BY).

1 Introduction

Modern physics struggles to reconcile General Relativity (GR) with Quantum Mechanics (QM), while the role of consciousness remains undefined. The Invariant Becoming Theory (IBT) addresses these challenges by positing that reality originates from the motion of a single monad in a 5-dimensional spacetime. IBT addresses the "hard problem of consciousness" by integrating observer choice ($\Delta\theta_{\text{choice}}$) as a fundamental component of reality formation. This paper presents IBT's conceptual foundation, mathematical formalism, physical implications, and experimental predictions, laying the groundwork for a "Theory of Everything" that incorporates consciousness as a fundamental component.

2 Related Work

IBT builds upon and diverges from established theories:

- **Quantum Mechanics:** Shares the use of wavefunctions (Ψ) but introduces a single-particle origin and consciousness via $\Delta\theta_{\text{choice}}$ [1, 2].
- **String Theory:** Employs a higher-dimensional framework, yet IBT simplifies to one monad rather than multiple strings [3].
- **Loop Quantum Gravity:** Quantizes spacetime similarly (e.g., ℓ_{Pl}), but ties it to a radiant structure [4].
- **Holographic Principle:** Reflection in IBT echoes the encoding of information in lower dimensions [5].
- **Consciousness Models:** Penrose’s Orch-OR links consciousness to quantum collapse; IBT generalizes this through observer choice [6].

IBT uniquely synthesizes these ideas into a monad-driven paradigm.

3 Concepts of IBT

IBT is grounded in four laws:

- **Existence:** Reality is an eternal continuum with no temporal origin.
- **Unity:** All phenomena are interconnected within a single whole.
- **Reflection:** Symmetries and structures encode reality’s properties.
- **Change:** Evolution drives complexity and self-organization.

Key concepts include:

- **Neutrality** (Ψ_{neutral}): The pre-observation state of reality.
- **Choice** ($\Delta\theta_{\text{choice}}$): Observer influence shapes outcomes.
- **Excess** (ϵ): "Vadim’s Paradox" suggests $P_{\text{total}} = |\Psi|^2 + \epsilon$, where $\epsilon > 0$ arises from observer effects, challenging standard probability normalization (e.g., a quantum system with a 5% excess probability ($\epsilon = 0.05$) due to observer choice).

4 Mathematical Framework

4.1 Basic Equation

The monad's dynamics are governed by:

$$i \frac{\partial \Psi}{\partial \tau} = -\nabla^2 \Psi + \lambda |\Psi|^2 \Psi, \quad (1)$$

where $\Psi(\tau)$ is the monad's wavefunction, τ is the becoming parameter (distinct from classical time), $-\nabla^2 \Psi$ describes spatial propagation, and $\lambda |\Psi|^2 \Psi$ (λ in m^{-2}) represents nonlinear self-interaction. The radiant is quantized:

$$\oint_{\gamma} |\Psi(\tau)|^2 d\tau = n \ell_{\text{Pl}}^2, \quad n \in \mathbb{Z}, \quad (2)$$

with $\ell_{\text{Pl}} = 1.616 \times 10^{-35} \text{ m}$ (Planck length).

4.2 Extended Equation

Incorporating gravitational effects and observation:

$$i \frac{\partial \Psi}{\partial \tau} = -\lambda(r) \Psi + i \omega_n \Psi + i \gamma \Delta \theta_{\text{choice}} \Psi, \quad (3)$$

where: - $\lambda(r) = \lambda_0 \left(1 - \frac{R_s}{r}\right)$ models gravitational damping (R_s is the Schwarzschild radius, $\lambda_0 \approx 10^{-5} \text{ m}^{-2}$ is a hypothetical constant derived from system scale), - $\omega_n = \frac{c^3}{GM}(\alpha_n + i\beta_n)$ is a frequency tied to mass M ($c = 3 \times 10^8 \text{ m/s}$, $G = 6.674 \times 10^{-11} \text{ m}^3 \text{ kg}^{-1} \text{ s}^{-2}$), - $\gamma \Delta \theta_{\text{choice}}$ ($\gamma \approx 0.05 \text{ s}^{-1}$, $\Delta \theta_{\text{choice}}$ dimensionless) quantifies observer influence.

The state evolves as:

$$\Psi_{\text{IBT}} = \Psi_{\text{neutral}} e^{-\beta_0 \omega_n \tau} e^{i(\alpha_0 \omega_n \tau + \theta)}, \quad (4)$$

with observation:

$$\Psi_{\text{obs}} = \Psi_{\text{neutral}} \cdot e^{i \Delta \theta_{\text{choice}}}. \quad (5)$$

Probability is modified:

$$P_{\text{total}} = |\Psi_{\text{obs}}|^2 + \epsilon, \quad \epsilon = k |\Delta \theta_{\text{choice}}| f(\text{system}), \quad (6)$$

where k (dimensionless) and $f(\text{system})$ (e.g., 0.02 for classical systems) introduce excess. Spatial shift is:

$$\Delta x = 10^{-9} \Delta \omega_{\text{IBT}} \tau e^{|\Delta \theta_{\text{choice}}|}, \quad \Delta \omega_{\text{IBT}} = \beta J_{\text{data}}(r) + \gamma \Delta \theta_{\text{choice}} + \delta \epsilon, \quad (7)$$

where $\Delta \omega_{\text{IBT}}$ adapts to system data (β, δ in s^{-1} , $J_{\text{data}}(r)$ dimensionless).

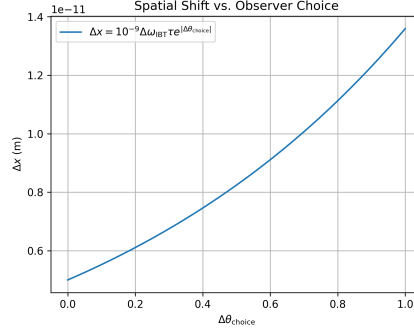


Figure 1: Spatial shift Δx as a function of $|\Delta\theta_{\text{choice}}|$ for $\tau = 1 \text{ s}$, $\Delta\omega_{\text{IBT}} = 0.005 \text{ s}^{-1}$, showing exponential growth consistent with IBT predictions.

5 Physical Implications

IBT unifies:

- **Quantum Mechanics:** Branching Ψ explains superposition and entanglement.
- **Gravity:** $\lambda(r)$ mimics spacetime curvature.
- **Cosmology:** Radiant intersections account for dark matter and energy.

6 Experimental Predictions

IBT predicts:

- **Spatial Shift:** $\Delta x \approx 5.5 \times 10^{-12} \text{ m}$ for $\Delta\theta_{\text{choice}} = 0.1$, measurable with quantum interferometry.
- **Fractal Patterns:** Angular distributions at LHC ($N(\theta) \propto \theta^{-D}$, $D \approx 1.5$).
- **Vibrational Shifts:** Laser-induced ω_n changes in oscillators.

For $\gamma = 0.05 \text{ s}^{-1}$, $\epsilon \approx 0.005$ suggests a 0.5% excess probability.

7 Discussion

IBT's 5D continuum aligns with Kaluza-Klein theory ($M_5 = M_4 \times S_1$), simplifying multi-particle models. The excess ϵ may face skepticism; alternatives include statistical fluctuations. The fractal patterns predicted by IBT could also be tested in cosmic microwave background (CMB) data, potentially revealing signatures of the monad's radiant at cosmological scales. Future tests could leverage LIGO's 10^{-19} m sensitivity to detect Δx .

8 Potential Applications

IBT's adaptive $\Delta\omega_{\text{IBT}}$ could optimize AI by modeling observer-driven probability shifts, pending empirical validation.

9 Conclusion

IBT offers a novel synthesis of physics and consciousness with verifiable predictions. We invite experimentalists to test Δx and theorists to explore ϵ 's implications under this open CC BY framework.

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